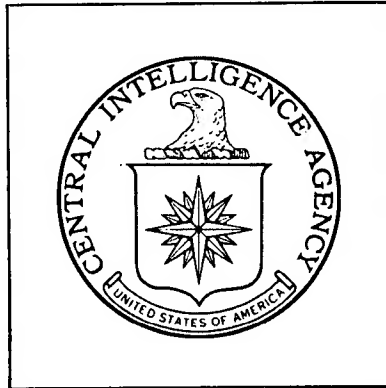


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**DIRECTORATE OF
INTELLIGENCE**

**Industrial Facilities
(Non-Military)**

Basic Imagery Interpretation Report

Pai Yang Ho Petroleum Refinery, Yu-men

Yu-men, China



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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
Imagery Analysis Service

INSTALLATION OR ACTIVITY NAME		COUNTRY
Pai Yang Ho Petroleum Refinery, Yu-men		CH
UTM COORDINATES	GEOGRAPHIC COORDINATES	WAC-PIC NO
47SLQ769095	39-50-10N 97-41-50E	0332-15A
MAP REFERENCE		
15th RTS. USATC 200. Sheet M0332-2HL, 3rd edition, August 1968, Scale 1:200,000 (SECRET)		
LATEST IMAGERY USED		NEGATION DATE (If required)
		Not Required

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ABSTRACT

This report provides a detailed imagery-derived analysis of the Pai Yang Ho Petroleum Refinery, Yu-men, China from September 1959 to August 1968.

The major production facilities at this refinery were complete and in operation when first seen on photography of September 1959. Between 1964 and 1966 a possible lubricating oil plant was added. The refinery products are gasoline, kerosene, diesel and fuel oil, residuum and possibly a full range of lubricating oils, waxes and asphaltic materials.

This report includes a detailed line drawing, a photograph of the refinery, a discussion of the physical features, operational functions, facilities and equipment, and reference data.

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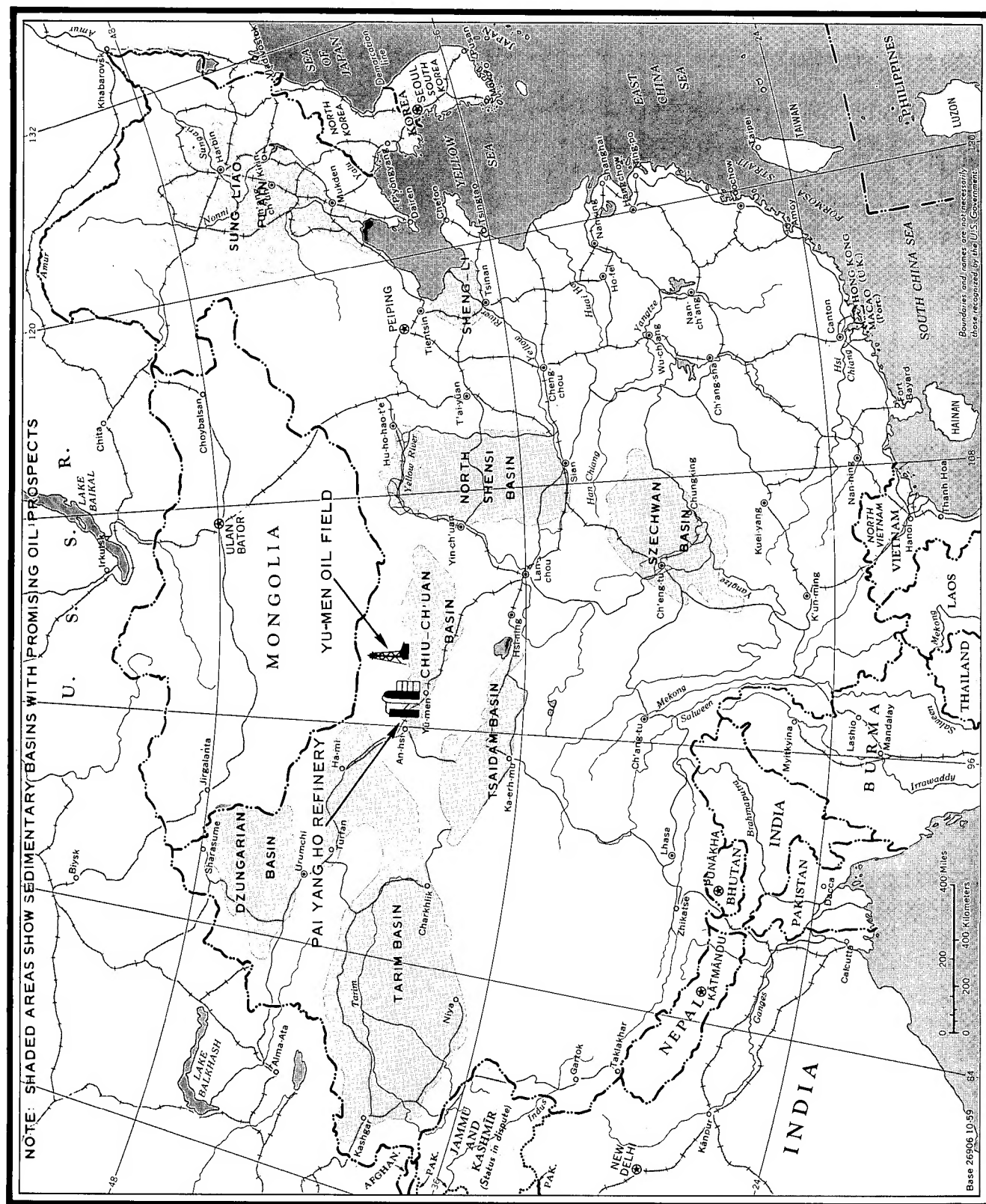


FIGURE 1. LOCATION MAP.

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INTRODUCTION

The Pai Yang Ho Petroleum Refinery, Yu-men, is located in Kansu Province on the west side of the town of Yu-men. Crude oil for charging the refinery is probably brought in by pipeline from the nearby oil fields. The Yu-men Heat and Thermal Power Plant [] which furnishes electric power to the refinery, is located 1 nautical mile to the north. The refinery is served by a good all-weather road system and by a spur from the main line between Ha-mi and Lan-chou.

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BASIC DESCRIPTIONPhysical Features

The refinery occupies an irregular-shaped area which measures approximately 5,600 by 3,800 feet and contains approximately 490 acres. The refinery is partially secured by a fence or a wall.

Operational Functions

The major products of this refinery are gasoline, kerosene, diesel and fuel oil, and residuum. A full range of lubricating oils, waxes and asphaltic materials are also possibly produced.

The major functional units include a shell still, an atmospheric distillation unit, a multistage distillation unit, a possible thermal cracking unit, and a possible light ends unit. The identification of a possible lubricating oil plant is based on the existence of groups of closely spaced, small and medium size tanks, located adjacent to processing equipment typical of that found in lubricating oil production facilities.

Status and Activity

Poor resolution and small scale of the early photography made a detailed analysis of the development of the refinery nearly impossible.

The crude oil distillation, thermal cracking and light ends recovery units appeared complete and operating when first seen on photography of September 1959. The possible lubricating oil plant (Area C) and the unidentified secondary processing units (Area E) were constructed between September 1964 and February 1966.

The only construction activity on August 1968 coverage was in the unidentified processing area (Area B). The plant appeared to be operating on this imagery, the latest used in this report.

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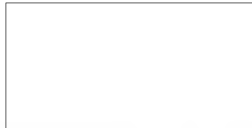

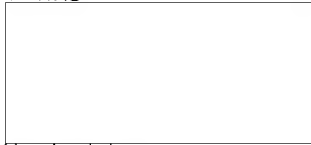
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Facilities and Equipment

The following table lists the functional area and equipment within the refinery. All items are keyed to Figure 3.

<u>Area</u>	<u>Description</u>	<u>Equipment*</u>	
A	Possible Treating and Storage	1 Pipe furnace 4 Processing buildings 23 Cylindrical treating/storage tanks  1-45 ft. diam. 2-40 ft. diam.  3-20 ft. diam. 	25X1 25X1 25X1
		7 Associated buildings 1 Spray pond	
B	Unidentified Processing U/C	1 Processing building U/C 12 Support buildings 1 Spray pond 2 Cylindrical tanks U/C 25 ft. diam. 2 Tank bases U/C	
C	Possible Lubricating Oil Plant	1 U/I processing unit with 1 Pipe furnace 2 Large possible packaging buildings 12 Cylindrical processing tanks/storage tanks  1 U/I processing unit with 2 Banks U/I equipment 3 U/I processing buildings 40 Cylindrical processing/storage tanks 	25X1 25X1
		1 Gas holder 25 ft. diam.	


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25X1AreaDescriptionEquipment*

1 Possible packaging plant with
 1 large L-shaped possible packaging
 building
 20 Cylindrical tanks


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 1-20 ft. diam.

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1 U/I processing unit with
 1 large irregularly shaped building
 2 Associated buildings
 25 Cylindrical processing/storage tanks

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1 U/I processing unit with
 2 Processing buildings
 11 Miscellaneous buildings
 14 Cylindrical tanks
 1-20 ft. diam.
 6-15 ft. diam.
 6-10 ft. diam.

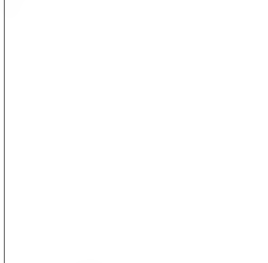
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 5 Miscellaneous buildings


D Products Storage

59 Cylindrical tanks


25X1


 15-30 ft. diam.

25X1


 4 Horizontal tanks

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1 Possible packaging building
 12 Associated buildings

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<u>Area</u>	<u>Description</u>	<u>Equipment*</u>	
		7 Cylindrical tanks	
		2-20 ft. diam.	25X1
		2-15 ft. diam.	
G	Intermediates Storage	2 Possible control/pumping buildings	
		24 Cylindrical tanks	25X1
		4-20 ft. diam.	
		4-10 ft. diam.	25X1
H	Crude Oil Distillation and Secondary Processing	1 Topping unit with 1 Fractionating column 1 Pipe furnace 1 Compressor/control building 1 Atmospheric distillation unit with 1 Fractionating column 1 Redistillation column 1 Pipe furnace 1 Compressor/control building 1 Multistage distillation unit with 1 Atmospheric distillation column 1 Vacuum distillation column 1 Redistillation column 2 Pipe furnaces 1 Compressor building 1 Control building 1 Bank of heat exchangers/cooling coils 1 Possible cracking unit with 4 Fractionating columns/reactors/ flash chambers 1 U/I column 2 A-frame furnaces 1 Control building 1 Associated building 1 Possible light ends unit with 3 Columns/absorbers 4 Associated buildings 1 Cooling pond 2 Water spray ponds 1 Water treatment pond 5 Miscellaneous buildings 1 Flare stack	

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<u>Area</u>	<u>Description</u>	<u>Equipment*</u>
		24 Cylindrical tanks
		<div></div>
		4-20 ft. diam.
		<div></div>
I	Crude Oil Storage	1 Large U/I building 4 Pumping buildings 1 Water pond 9 Cylindrical tanks 1-95 ft. diam. 1-50 ft. diam. 6-40 ft. diam. <div></div>

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*All storage tank dimensions are approximate.

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REFERENCES

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Map

15th RTS. US Air Target Chart, Series 200, Sheet M0332-2HL, 3rd edition,
Aug 68. Scale 1:200,000 (SECRET)

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Requirement

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